

Claims

1. A method of communication between a private network (1) and a roaming mobile terminal (4), said private network (1) including a home agent (5) for said mobile terminal and a gateway (2, 3) through which said communication passes and which provides security protection for said private network (1), the protocols of said communication including security association bundles each including a security association between said mobile terminal (4) and said gateway (2, 3) for inbound communication and another security association for outbound communication, characterised in that, in response to a handover of communication causing an IP address (MN Co @) of said mobile terminal (4) to change to a new IP address (MN New Co @), said mobile terminal updates its inbound security association from said gateway (2, 3) so that it can receive packets sent to it with said new IP address (MN New Co @) as destination, said mobile terminal (4) sends a first signalling message with said home agent (5) as destination in a secure tunnel (20') to said gateway (2, 3), said first signalling message indicating said new IP address (MN New Co @) in secure form to said home agent (5), the inbound security association of said gateway (2, 3) from said mobile terminal (4) accepts said first signalling message without checking its source address, said gateway (2, 3) forwards said first signalling message within said private network (1) to said home agent (5), said home agent (5) checks the validity of said first signalling message and, if it is valid, updates its address data and sends a second signalling message to said gateway (2, 3) indicating said new address (MN New Co @), and said gateway (2, 3) updates its outbound security association with said mobile terminal (4) in response to the new address (MN New Co @) indicated.
2. A method as claimed in claim 1, wherein communication between said mobile node (4) and said gateway (2, 3) is in accordance with an IPsec protocol specification.

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3. A method as claimed in claim 2, wherein communication between said gateway (2, 3) and said mobile terminal (4) is in accordance with an Encapsulating Security Payload protocol used in tunnel mode.
4. A method as claimed in any preceding claim, wherein a registration reply for said mobile node (4) is included in said second signalling message.
5. A mobile terminal for use in communication by a method as claimed in any preceding claim, comprising means responsive to a handover of communication causing an IP address (MN Co @) of said mobile terminal to change to a new IP address (MN New Co @) for updating the inbound security association of said mobile terminal (4) from said gateway (2, 3) so that it can receive packets sent with said new IP address (MN New Co @) as destination and for sending a first signalling message with said home agent (5) as destination through a secure tunnel (20') to said gateway, said first signalling message indicating said new IP address (MN New Co @) in secure form to said home agent (5).
6. A mobile terminal for use in communication by a method as claimed in any preceding claim, comprising means responsive to a handover of communication causing an IP address (MN Co @) of said mobile terminal (4) to change to a new IP address (MN New Co @) for updating the outbound security association of said mobile terminal (4) to said gateway (2, 3) so that said mobile terminal (4) can send packets to said gateway (2, 3) with said new IP address (MN New Co @) as source address.
7. A gateway for use in communication by a method as claimed in any preceding claim, comprising means responsive to said first signalling message received in a secure tunnel (20') from said mobile terminal with said home agent (5) as destination for causing said inbound security association at said gateway (2, 3) from said mobile terminal (4) to accept said first signalling message without checking its source address and for forwarding said first signalling message to said home agent (5), and means responsive to said second signalling message indicating said new address (MN New Co @) for updating said

outbound security association of said gateway (2, 3) with said mobile terminal (4) in response to the new address (MN New Co @) indicated.

8. A home agent for use in communication by a method as claimed in any preceding claim, comprising means responsive to said first signalling message received from said gateway (2, 3) for sending said second signalling message to said gateway (2, 3) indicating said new address (MN New Co @) for said gateway to update its outbound security association with said mobile terminal (4).